

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No.: US 7,332,951 B2    Issue Date : Feb. 19, 2008  
Serial No.: 10/710,472        Filing Date : Jul. 14, 2004  
Inventor : En-Hsiang Yeh  
Docket No.: MTKP0157USA4

Title:        SWITCHED CAPACITOR CIRCUIT CAPABLE OF MINIMIZING  
              CLOCK FEEDTHROUGH EFFECT AND HAVING LOW PHASE NOISE  
              AND METHOD THEREOF

To:            Commissioner for Patents  
              P.O. BOX 1450  
              Alexandria, VA 22313-1450

Subject:    Request for Certificate of Correction of Office  
              Mistake

Dear Sir:

The residence of the Assignee listed on the front page of the Patent is incorrect (Attachment 1). Documents on record indicate this as an Office mistake of consequence.

The applicant hereby requests that a Certificate of Correction be issued under 37 CFR 1.322 to correct the residence of the Assignee from "Hsin-Chu, Hsein" to "Hsin-Chu Hsien" which was correctly listed on the Fee Transmittal submitted on 11/07/2007 (Attachment 2) and the Notice of Recordation dated 07/14/2004 (Attachment 3). Your quick response will be greatly appreciated.

Sincerely yours,

Winston Hsu

Date: MAR 13 2008

Winston Hsu, Patent Agent No. 41,526

P.O. BOX 506, Merrifield, VA 22116, U.S.A.

Voice Mail: 302-729-1562

Facsimile: 806-498-6673

e-mail : winstonhsu@naipo.com

Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)

## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page 1 of 1

PATENT NO. : 7,332,951 B2  
APPLICATION NO.: 10/710,472  
ISSUE DATE : Feb. 19, 2008  
INVENTOR(S) : En-Hsiang Yeh

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the title page, item(73), correct the residence of the assignee from "Hsin-Chu, Hsein" to "Hsin-Chu Hsien".

MAILING ADDRESS OF SENDER (Please do not use customer number below):

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

Please correct the residence of the assignee from "Hsin-Chu, Hsein" to "Hsin-Chu Hsien"

Attachment 1



US007332951B2

(12) **United States Patent**  
**Yeh**

(10) **Patent No.:** **US 7,332,951 B2**  
(45) **Date of Patent:** **Feb. 19, 2008**

(54) **SWITCHED CAPACITOR CIRCUIT CAPABLE OF MINIMIZING CLOCK FEEDTHROUGH EFFECT AND HAVING LOW PHASE NOISE AND METHOD THEREOF**

(75) **Inventor:** **En-Hsiang Yeh, Hsin-Chu (TW)**

(73) **Assignee:** **Mediatek Incorporation, Science-Based Industrial Park, Hsin-Chu, Hsein (TW)**

(\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 58 days.

(21) **Appl. No.:** **10/710,472**

(22) **Filed:** **Jul. 14, 2004**

(65) **Prior Publication Data**  
**US 2005/0068086 A1 Mar. 31, 2005**

**Related U.S. Application Data**  
(63) Continuation-in-part of application No. 10/605,428, filed on Sep. 30, 2003, now Pat. No. 6,975,156.

(51) **Int. Cl.**  
**G06F 7/64 (2006.01)**

(52) **U.S. Cl.** ..... **327/337; 331/36 C**

(58) **Field of Classification Search** ..... **257/335, 257/347, 401, 337, 348, 345, 346, 300, 389; 325/340, 316, 350; 455/260; 327/332, 117, 327/179, 337; 331/36 C**

See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

5,977,840 A \* 11/1999 Connell et al. .... 331/158  
6,181,215 B1 1/2001 Kuttner  
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6,393,070 B1 \* 5/2002 Reber ..... 375/340  
6,975,156 B2 \* 12/2005 Yeh ..... 327/337

**FOREIGN PATENT DOCUMENTS**

CN 1269920 A 10/2000

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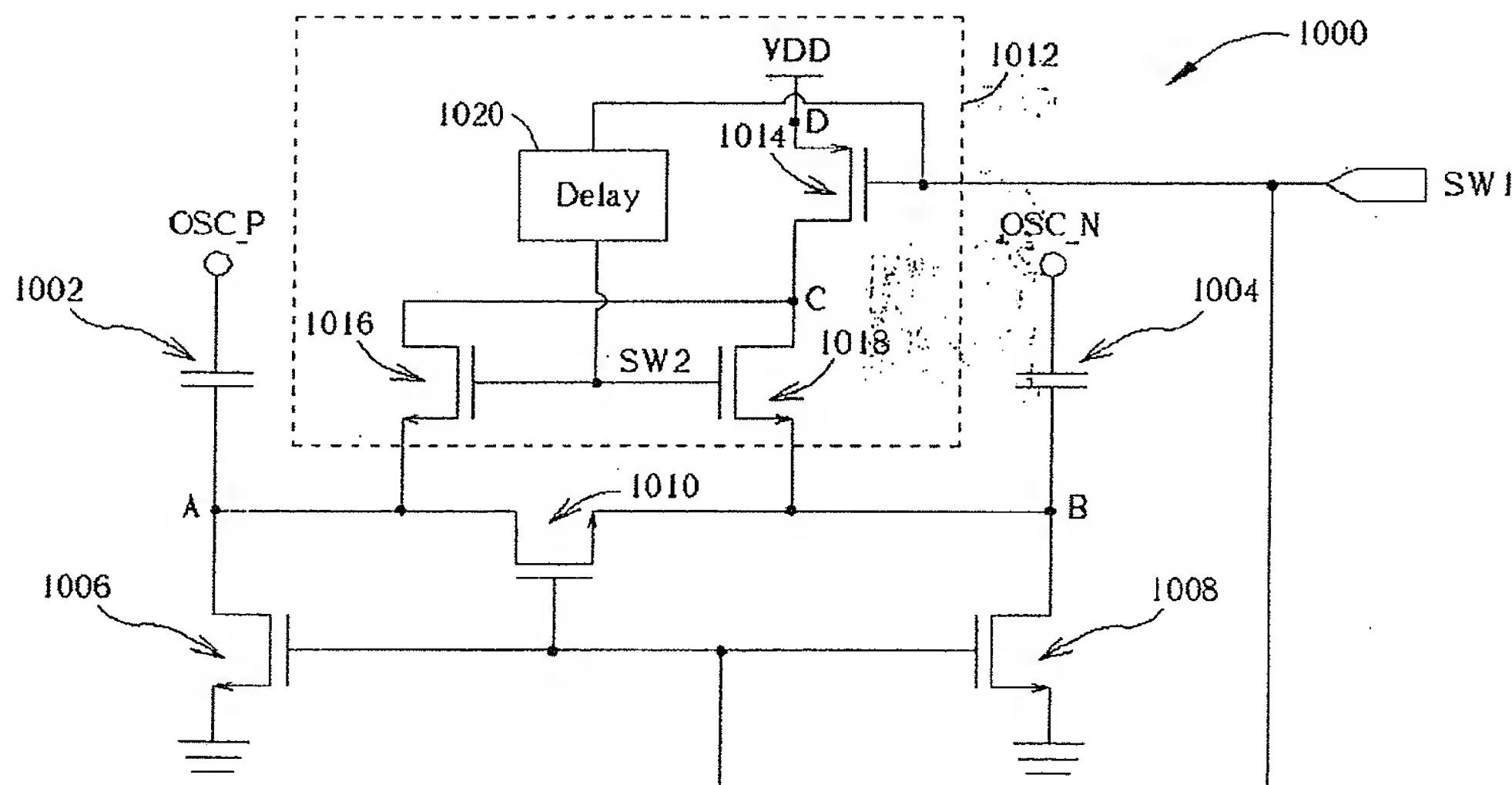
*Primary Examiner*—Evan Pert

(74) *Attorney, Agent, or Firm*—Winston Hsu

(57) **ABSTRACT**

A switched capacitor circuit includes a positive side capacitor coupled to a first positive side node; a first positive side switch element for selectively coupling the first positive side node to a second node according to a first control signal; and precharge circuit coupled to the first positive side node for precharging the first positive side node to a precharge voltage for a predetermined time when the first positive side switch element is switched off according to the first control signal, and then for charging the first positive side node to a charge voltage until the first positive side switch element is switched on according to the first control signal. By rapidly precharging the first positive side node, the clock feedthrough effect is eliminated and the locking period of the VCO is shortened. Afterwards by charging the first positive side node, the phase noise of the VCO is minimized.

**17 Claims, 14 Drawing Sheets**





## Attachment 2

## PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE  
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27765 7590 09/13/2007

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## Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Stephanie Lai	(Depositor's name)
<i>Stephanie Lai</i>	(Signature)
11/07/2007	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,472	07/14/2004	En-Hsiang Yeh	MTK0157USA4	4471

TITLE OF INVENTION: SWITCHED CAPACITOR CIRCUIT CAPABLE OF MINIMIZING CLOCK FEEDTHROUGH EFFECT AND HAVING LOW PHASE NOISE AND METHOD THEREOF

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$1740	12/13/2007

EXAMINER	ART UNIT	CLASS-SUBCLASS
PERT, EVAN T	2826	327-337000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,  
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Winston Hsu  
2 \_\_\_\_\_  
3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

MEDIATEK INCORPORATION

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

5F, No. 1-2, Innovation Road 1, Science-Based Industrial Park, Hsin-Chu  
Hsien, Taiwan, R.O.C.

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are enclosed:

- ☒ Issue Fee  
☒ Publication Fee (No small entity discount permitted)  
☐ Advance Order - # of Copies \_\_\_\_\_

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☒ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number 50-3105 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature Winston Hsu

Date 11/07/2007

Typed or printed name Winston Hsu

Registration No. 41,526

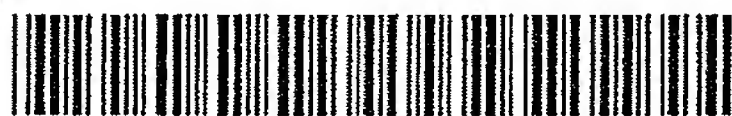
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JULY 14, 2004

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Joe

JUL 26 2004

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RECORDATION DATE: 07/14/2004

REEL/FRAME: 014844/0171

NUMBER OF PAGES: 2

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).  
DOCKET NUMBER: MTKP0157USA4

ASSIGNOR:

YEH, EN-HSIANG

DOC DATE: 07/07/2004

ASSIGNEE:

MEDIATEK INCORPORATION  
5F, NO. 1-2, INNOVATION ROAD 1,  
SCIENCE-BASED  
INDUSTRIAL PARK  
HSIN-CHU HSIEN, TAIWAN

SERIAL NUMBER: 10710472

FILING DATE:

PATENT NUMBER:

ISSUE DATE:

TITLE:

014844/0171 PAGE 2

MARY BENTON, EXAMINER  
ASSIGNMENT DIVISION  
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## PATENT ASSIGNMENT

Electronic Version v07

Stylesheet Version v02

07/14/2004

800012779

SUBMISSION TYPE:	NEW ASSIGNMENT	<b>APPLICATION NUMBER</b> 10/710472			
NATURE OF CONVEYANCE:	ASSIGNMENT OF ASSIGNOR'S INTEREST				
CONVEYING PARTY DATA					
Name		Execution Date			
En-Hsiang Yeh		2004-07-07			
RECEIVING PARTY DATA					
Name	Street Address	Internal Address	City	State/Country	Postal Code
MEDIATEK INCORPORATION	5F, No. 1-2, Innovation Road 1, Science-Based	Industrial Park	Hsin-Chu Hsien	TAIWAN	
CORRESPONDENCE DATA					
FAX NUMBER: 886229295950					
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>					
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CUSTOMER NUMBER: 027765					
NAME OF PERSON SIGNING:		WINSTON HSU			
DATE SIGNED:		2004-07-12			
Total Attachments: 1					
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